

# Measuring Indiana Waste Diversion Goals

Indiana Department of Environmental  
Management

**Office of Land Quality**

# Indiana Code 13-19-1-1

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The policy of the State is that:

- source reduction
- recycling; and
- other solid waste management alternatives

are preferred over incineration and landfill disposal as solid waste management methods.

*March 1990*

# Indiana Code 13-19-1-2

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The goal of the state is to reduce the amount of SW incinerated and disposed of in landfills in Indiana by:

- 35% before January 1, 1996
- 50% before January 1, 2001

though the application and encouragement of SW source reduction, recycling, and other alternatives to incineration and LF disposal.

*March 1990*

# State Solid Waste Plan

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- ✓ Literal interpretation of statute is
  - too aggressive
  - does not take into account economics
- ✓ Plan interpretation of goal:
  - $\text{Diversion}_{2000} = 0.50 \times \text{Generation}_{1991}$

*December 1990*

# Recommended Calculation

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$$\text{Diversion}_{2000} = 0.50 \times \text{Generation}_{2000}$$

*For example:*

Generation<sub>1991</sub> = 20 million tons

Generation<sub>2000</sub> = 15 million tons

Diversion<sub>2000</sub> = 10 million tons

% Diversion:

State Plan = 50%

**Recommended = 67%**

*September 1994*

# Variables

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- **Generation** = Disposal + Diversion
- **Disposal** = Internal + Exports
- **Diversion** = Recycling + Reuse

*What we have to work with...*

- ✓ **Internal Disposal**
- ✓ **Exports to Neighbor States**

*What we are missing...*

- ✓ **Generation or Diversion**
- ✓ **Exports to Non-Neighbor States**

# Estimating Generation (G)

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$$G_{\text{year}} = G_{\text{base yr}} \times \% \text{ change GSP}$$

GSP = Gross State Product

$$G_{\text{base yr}} = \text{Disposal}_{\text{base yr}} + \text{Diversion}_{\text{base yr}}$$

$\text{Diversion}_{\text{base yr}}$  = per original solid waste management district plans

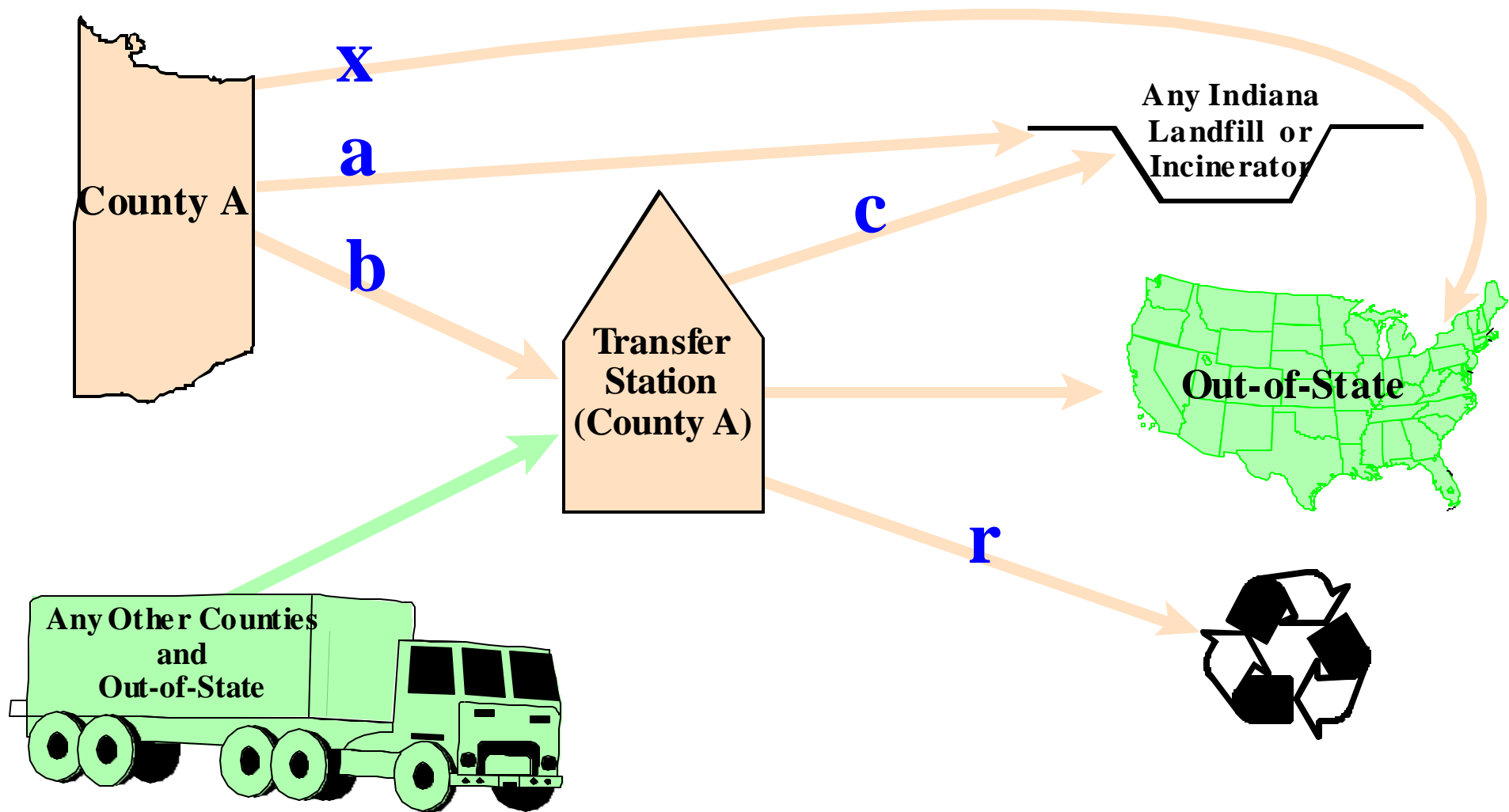
# Estimating Disposal

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$$\text{Disposal} = \begin{array}{c} \text{Permitted} \\ \text{Facilities} \\ \text{Quarterly} \\ \text{Reports} \end{array} + \begin{array}{c} \text{Exports Data} \\ \text{from OH, KY,} \\ \text{IL \& MI} \end{array}$$

- ✓ Since Quarterly Reports 1991-92 data not as reliable, base year was changed to 1993
- ✓ Some export data are not entirely comparable with Indiana quarterly reports data
- ✓ Eliminating double-count from Transfer Station receipts is a complex calculation

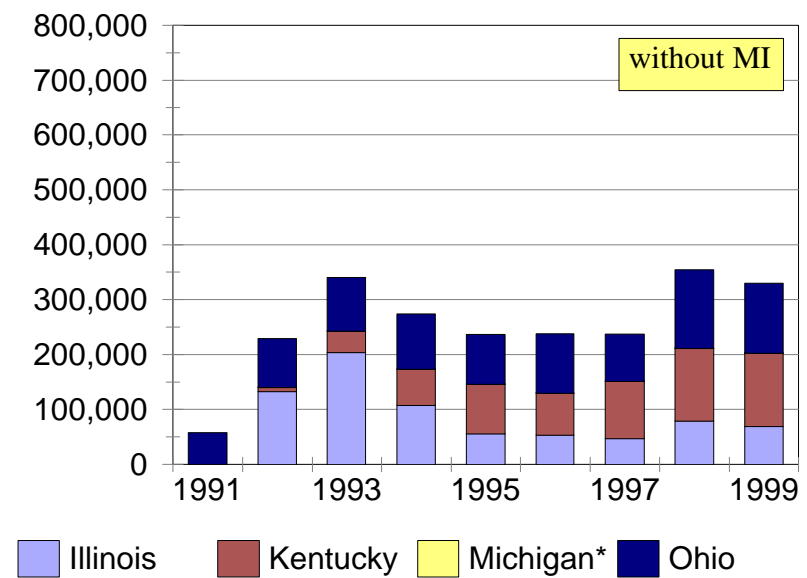
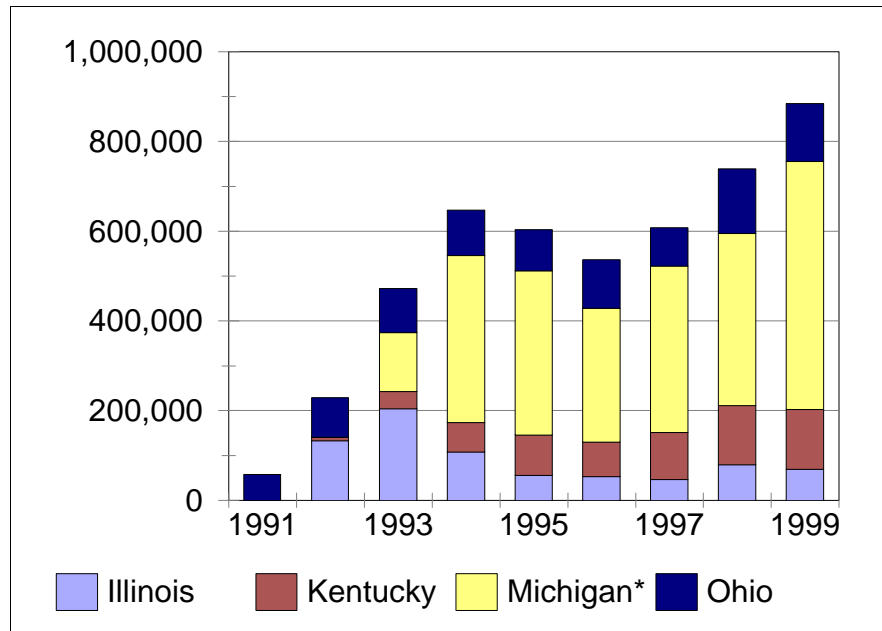




$$\text{County A Disposal} = a + b + x - r$$

## SUMMARY OF INDIANA ESTIMATED EXPORTS

	1991	1992	1993	1994	1995	1996	1997	1998	1999
Illinois	NA	133,103	204,048	108,263	56,504	53,601	47,032	79,396	69,471
Kentucky	NA	7,471	39,010	65,261	89,861	77,005	104,539	132,249	133,157
Michigan*	0	0	131,350	373,126	366,129	297,675	370,768	383,519	553,762
Ohio	58,157	88,135	97,702	100,071	90,757	107,304	85,592	143,203	127,894
<b>TOTAL</b>	<b>58,157</b>	<b>228,708</b>	<b>472,110</b>	<b>646,721</b>	<b>603,251</b>	<b>535,585</b>	<b>607,930</b>	<b>738,367</b>	<b>884,283</b>
without MI	58,157	228,708	340,760	273,595	237,122	237,910	237,162	354,848	330,522



\* Michigan data is for fiscal year (October to September), while data for other states is for the calendar year (January to December).

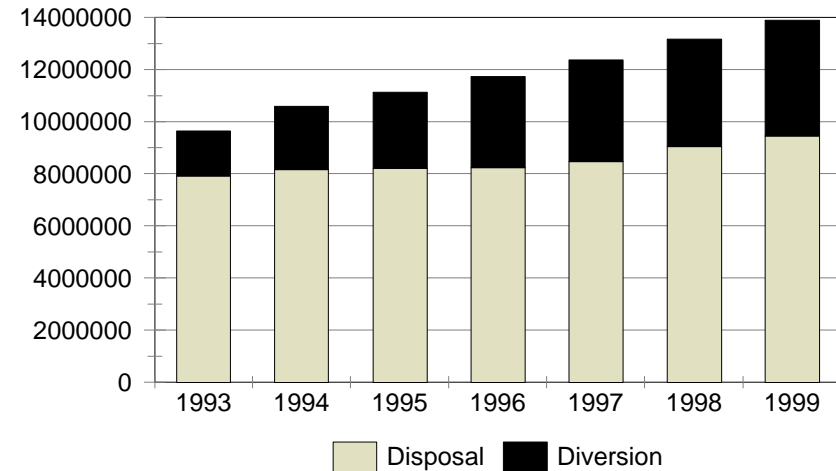
*Italics denotes an estimated amount*

# INDIANA SOLID WASTE DISPOSAL

## Analysis of % Diversion - ESTIMATE

### Notes:

- Disposal, Diversion, and Generation are given in tons.
- Per capita values are in units of lbs/person/day.
- All waste types have been included.
- Only non-industrial final disposal facilities have been included: MSWLs, C/D, large SW incinerators, and wastewater sludge monofils.
- Does NOT include waste received from out-of-state.
- Source reduction is accounted for in Diversion values.
- Gross State Product (current \$) is used as economic adjustment to estimate generation (1997-98 GSP are estimated by linear regression since GSP is not yet available).
- No population adjustment (assumed GSP accounts for it)
- Exports to Michigan are INCLUDED for all years (estimated for 1993-95)



	1993	1994	1995	1996	1997	1998	1999
(1a) <b>Indiana Disposal</b>	7,449,694	7,517,702	7,610,950	7,694,149	7,857,925	8,306,659	8,570,870
(1b) <b>Exported to Other States</b>	472,110	646,721	603,251	535,585	607,930	738,367	884,283
(1c) <b>TOTAL Disposal (tons)</b>	7,921,804	8,164,423	8,214,201	8,229,734	8,465,855	9,045,026	9,455,153
(1d) per capita (lb/day/person)	7.62	7.79	7.78	7.74	7.91	8.40	8.72
(2a) <b>Diversion (total tons)</b>	1,718,956	2,421,707	2,912,138	3,494,247	3,902,249	4,119,595	4,438,951
(2b) per capita (lb/day/person)	1.65	2.31	2.76	3.29	3.65	3.83	4.09
(3a) <b>Generation (total tons)</b>	9,640,760	10,586,131	11,126,339	11,723,981	12,368,104	13,164,621	13,894,104
(3b) per capita (lb/day/person)	9.27	10.10	10.53	11.02	11.56	12.23	12.81
(4a) <b>Population</b>	5,700,243	5,741,540	5,787,839	5,828,090	5,864,108	5,899,195	5,942,901
(5a) <b>Gross State Product (million \$)</b>	129,667	141,358	147,383	154,227	161,701	171,091	179,244
(5c) <b>Adjustment Multiplier</b>	1.000	1.090	1.137	1.189	1.247	1.319	1.382
(6a) <b>% Diversion (Recommended)</b>	17.8	22.9	26.2	29.8	31.6	31.3	31.9
(6b) <b>% Diversion (State Plan)</b>	17.8	25.1	30.2	36.2	40.5	42.7	46.0

% Diversion (Recommended) = diversion in current year / generation in current year

Diversion (State Plan) = diversion in current year / generation in 1993

Please Note = highlighted areas represent data not yet available, estimated by linear regression or other methods

## **H. STRATEGIC GOAL: Reduce and Safely Manage Waste**

### **H.1 STRATEGIC OBJECTIVE: Improve waste handling and management practices**

BEHAVIORAL OBJECTIVES	IDEM ACTIVITIES	F
	(qq) Develop a <i>Statewide Emergency Waste Disposal Plan</i> for disposal of waste and debris from natural disasters such as floods and tornadoes.	

### **H.2 STRATEGIC OBJECTIVE: Reduce land disposal of hazardous waste X% of 1991 total by the year 2001. of the pollution prevention hierarchy of reduce, reclaim and treat.**

BEHAVIORAL OBJECTIVES	IDEM ACTIVITIES	F
H.2.1 Reduce the amount of hazardous waste generated by Large Quantity Generators (LQGs) by X% by the year 2001.	(a) Continue improvements in the data quality and integration of the hazardous waste Manifest, Biennial Report and IRATS databases.	
	(b) Develop a strategy for identifying facilities in different sectors which have accomplished significant reduction in waste generation.	
	(c) Develop an outreach strategy to provide other facilities information on successful waste reduction efforts.	(b) Develop sectors which waste generation

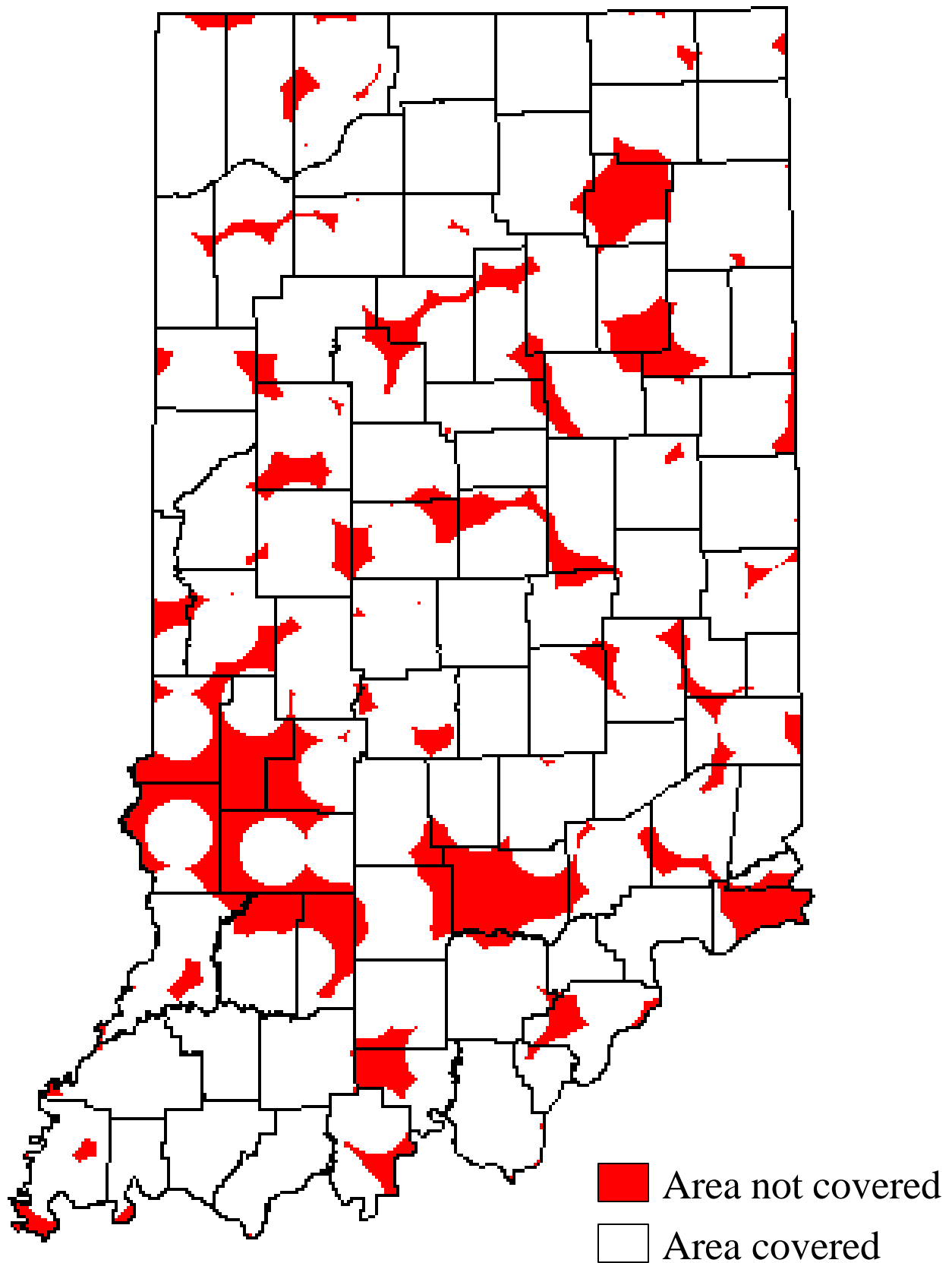
### **H.3 STRATEGIC OBJECTIVE: Reduce municipal and non-municipal solid waste final disposal by 50 percent by the year 2000.**

BEHAVIORAL OBJECTIVES	IDEM ACTIVITIES	F
H.3.1 75% of Indiana's residents will have direct access to broad recycling opportunities within 8 miles of their home by the year 2000.	(a) Identify recycling opportunities throughout the state and promote these opportunities to the citizens, in coordination with external partners.	
	(b) Encourage regional cooperative ventures among local communities to encourage broader recycling services and cost efficiencies.	

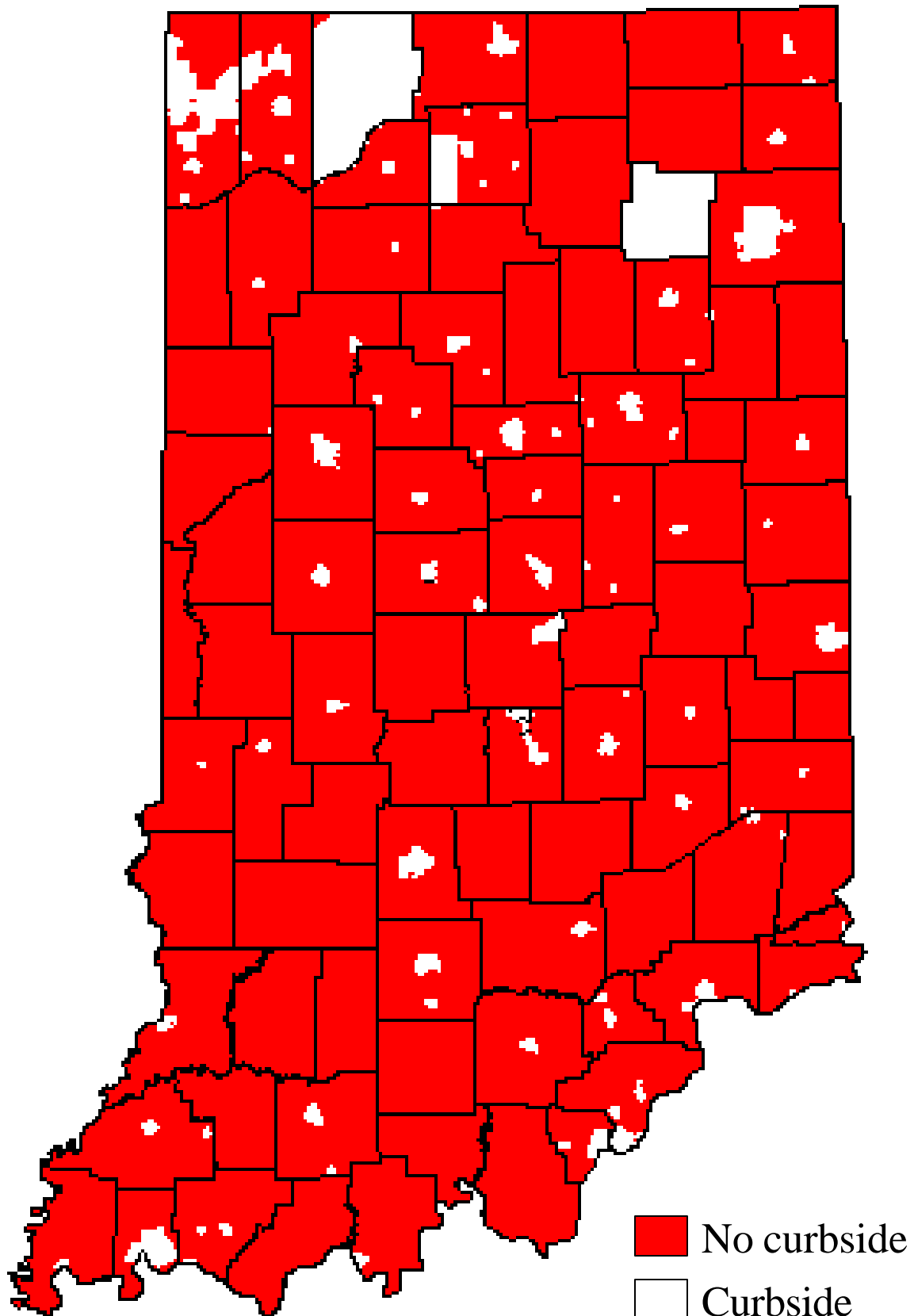
**POPULATION AND PERCENTAGE OF TOTAL INDIANA POPULATION WITH ACCESS TO RECYCLING OPPORTUNITIES**

	1997		1998		Revised 1998	
	Population	% Total	Population	% Total	Population	% Total
<b>Residents with access to</b>						
Full-service curbside (1)	2,164,456	38%	2,193,558	39%	2,186,759	39%
Subscription curbside, including areas in which full-service curbside is offered (1)	3,229,150	57%	3,240,485	57%	3,240,485	57%
Full-service curbside in areas where subscription curbside is also offered (2)	1,260,214	22%	1,263,479	22%	1,263,479	22%
Subscription curbside, in areas where full-service curbside is not offered (3)	1,968,936	35%	1,977,006	35%	1,977,006	35%
Any curbside service (full-service or subscription or both) (1)	4,133,392	73%	4,170,564	74%	4,170,564	74%
<b>Residents living within an 8-mile radius of a drop-off site (1)</b>	5,340,444	95%	5,579,857	99%	5,579,857	99%
<b>Residents with access to some form of recycling services (drop-off or curbside or both) (4)</b>	5,540,659	98%	5,624,375	100%	5,624,375	100%
<b>Residents with access to both drop-off sites and a curbside service (6)</b>	3,933,177	70%	4,126,046	73%	4,126,046	73%
<b>Residents with access to drop-off sites or full-service curbside or both (5)(1)</b>	5,523,176	98%	5,606,628	99%	5,606,628	99%
<b>Residents with access to both drop-off sites and full-service curbside (7) (1)</b>	2,065,502	37%	2,166,787	38%	2,166,787	38%
<b>Residents living within an 8-mile radius of a drop-off site and with no access to any form of curbside service (8)</b>	1,407,267	25%	1,409,293	25%	1,409,293	25%
<b>Residents with no access to recycling services (9)</b>	107,260	2%	23,544	0%	23,544	0%

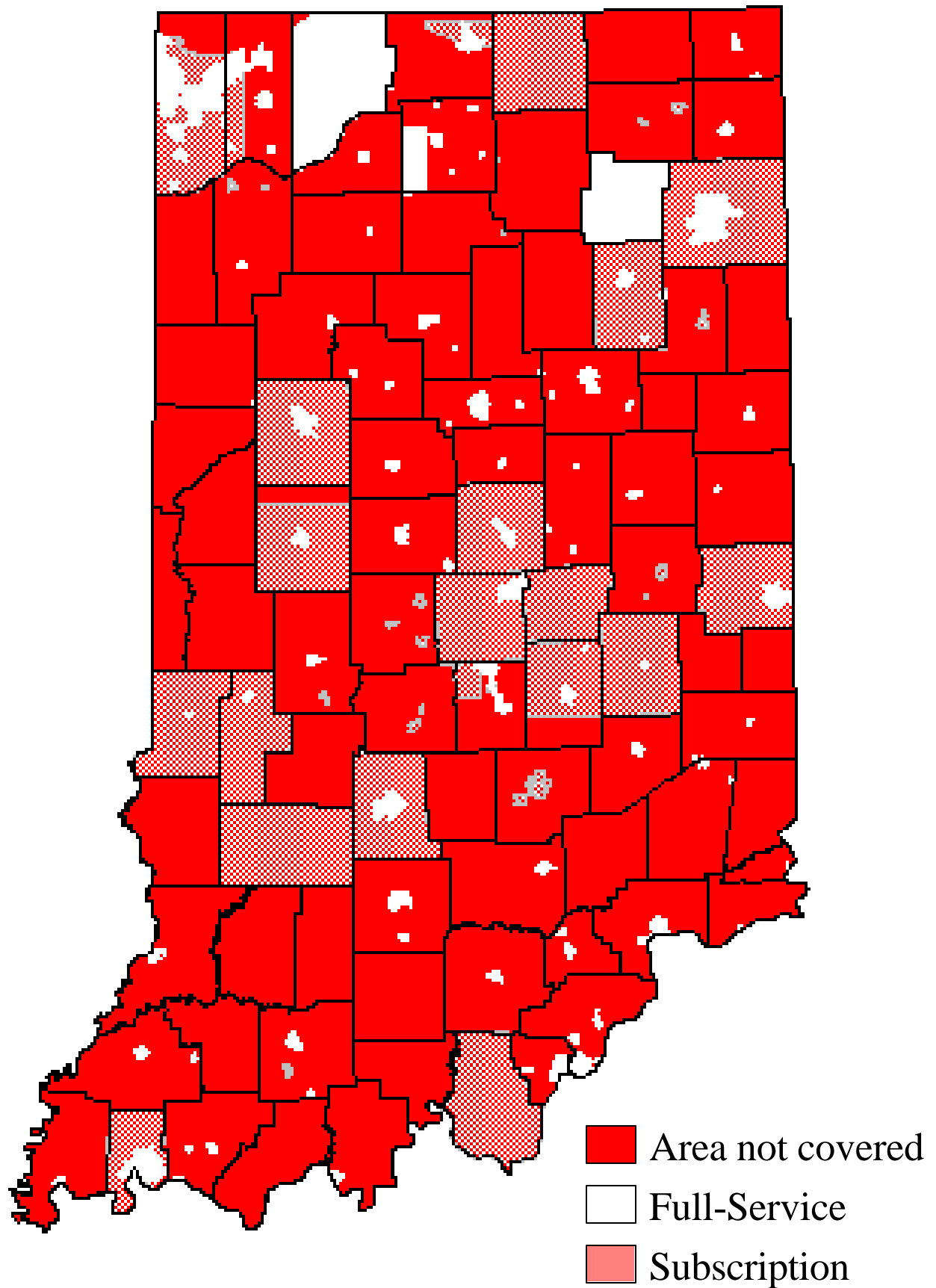
## 1998 Areas in 8-Mile Radii of Drop-Off Sites



## 1998 Full-Service Curbside

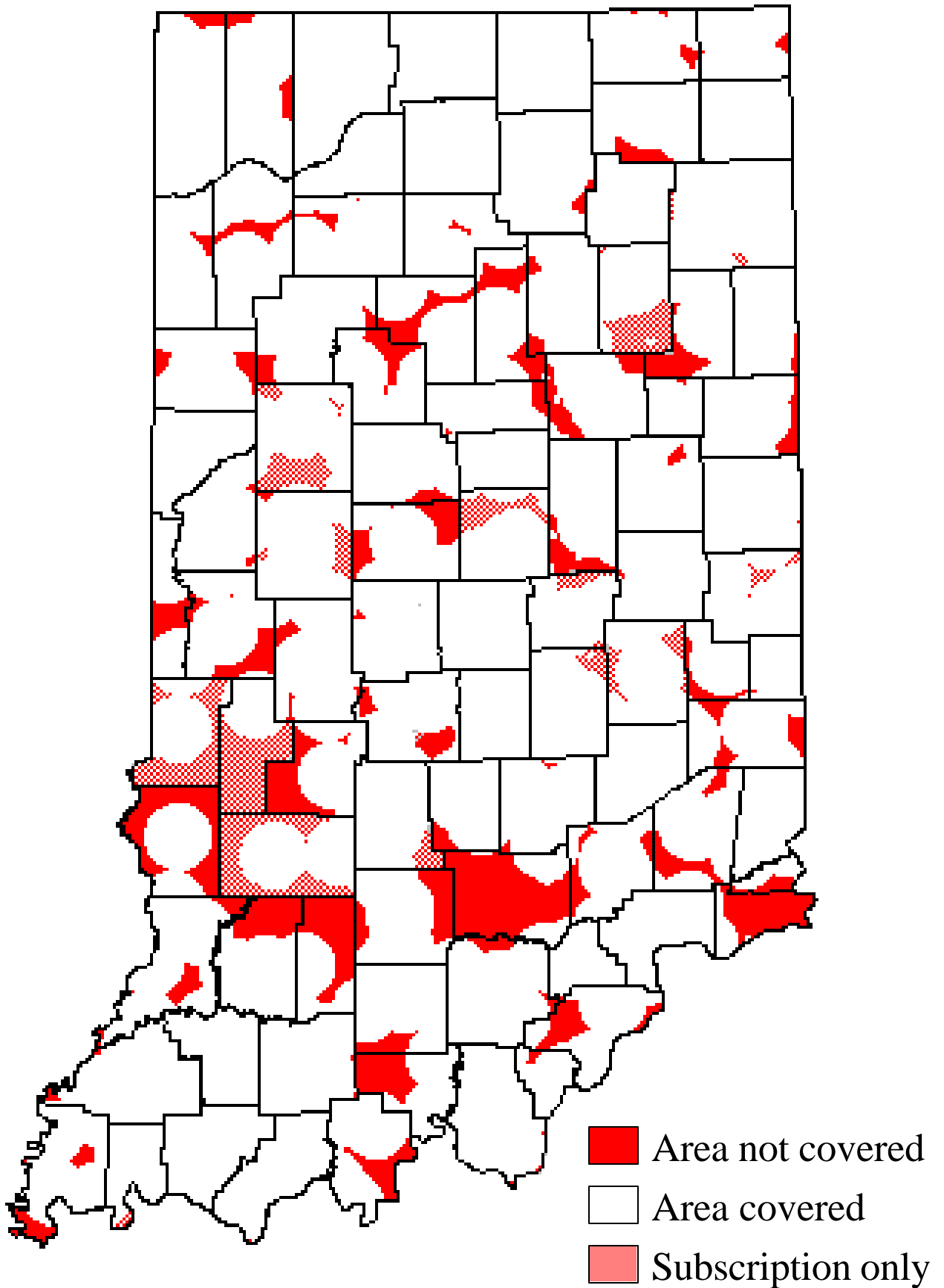


## 1998 Full-Service & Subscription Recycling





## 1998 Full-Service, Subscription, Drop-Off



### FULL SERVICE CURBSIDE RECYCLING LOCATIONS

County	City/Area	Black = existed at 12/31/98 Green = new in 1999 Red = discontinued in 1999
Clark Clark Clark Clark Clark	Charlestown Clarksville Jefferson Sellersburg Unincorporated: Oak Park Census Tract Area	Source: 1999 Annual Report
Lake Lake	Cedar Lake Crown Point Dyer East Chicago Gary Griffith Hammond Highland Hobart Lake of Four Seasons Lake Station Lowell Merrillville Munster New Chicago Schererville Schneider St. John Whiting Winfield	Source: 1999 Annual Report
Marshall Marshall Marshall Marshall Marshall Marshall	County-wide, full-service, private contractor Argos Bremen Bourbon LaPaz Plymouth Union-West Townships, provided by SWMD	Source: 1999 Annual Report     Substituted w/county-wide svc
Porter Porter Porter Porter Porter Porter	Chesterton Hebron Kouts Portage Porter Valparaiso	Source: 1999 Annual Report

# DROP-OFF RECYCLING LOCATIONS

County	City	Site Name	Location
Clark	Borden	Kid's Station	129 West St
Clark	Clarksville	Parkwood Elementary	748 Spicewood Dr
Clark	Henryville	Henryville Waste Co.	301 S. Ferguson St
Clark	Jeffersonville	Clark Memorial Hospital	1220 Missouri Ave
Clark	Jeffersonville	District Office	1638 E. 10th St, 10th & Springdale
Clark	Jeffersonville	No Name	Hamburg Pike & Quarry Rd
Clark	Jeffersonville	Wild-Mayden	5814 Hamburg Pike
Clark	Marysville	No Name	Marysville Rd & Railroad St
Clark	Memphis	Pilot Plaza	Memphis Rd & I65
Clark	New Washington	New Washington Middle School	Poplar St
Clark	New Washington	No Name	300 E. 1st St
Clark	Utica	Utica Fire Station	110 N. Front St
Lake	Cedar Lake	Lake Shore Hardware	7120 W. 103rd Ave
Lake	Crown Point	Crown Point Little League	341 W. North St
Lake	Dyer	Walt's Foods	1218 Sheffield
Lake	East Chicago	Sterk's Food	4725 Indianapolis Blvd, Indianapolis & Chicago Ave
Lake	East Chicago	Sterk's Food	2121 E. Columbus Dr
Lake	Gary	Brother's Keeper	2120 Broadway
Lake	Gary	Gary Career Center	1800 E. 35th St
Lake	Gary	Ralph's Food	6300 Miller Ave
Lake	Gary	Tri-City Plaza	4445 W. 5th, 5th & Clark Rd
Lake	Gary	Wiseway Foods	6010 W. Ridge Rd
Lake	Hammond	Sterk's Food	31 Sibley Ave
Lake	Hammond	Sterk's Food	1836 Calumet Ave
Lake	Hammond	Van Tils	2635 169th St
Lake	Highland	Stracks & Van Til	45th & Cline
Lake	Highland	Ultra Foods	8401 Indianapolis Blvd
Lake	Hobart	Sam's Food	3134 E. 79th Ave
Lake	Hobart	Stracks & Van Til	7760 E 37th Ave
Lake	Hobart	Wiseway Foods	999 W. Old Ridge Road
Lake	Lowell	Cross Roads Plaza	Rt 2 & US 41
Lake	Lowell	Shell (Luke's Oil)	18000 Colorado St, Hebron (Lowell)
Lake	Lowell	Wico Foods	2080 E. Commercial
Lake	Merrillville	Stracks & Van Til	7210 Taft St
Lake	Merrillville	Wiseway Foods	61st & Broadway
Lake	Schererville	Public Works Dept.	740 Kaiser Blvd
Lake	Schererville	Stracks & Van Til	1650 Rt 41
Lake	Winfield	Double Tree Plaza	Randolph & 109th Ave
Marshall	Lakeville	La Ville (Lakeville?) Elementary	12645 Tyler Rd
Marshall	Bremen	No Name	200 S. Center St
Marshall	Plymouth	G&G Plaza	230 E. Garro St, River & Garro
Marshall	Plymouth	Wal-Mart	2505 N. Oak Rd
Marshall	Plymouth	Martin's Supermarket	865 E. Jefferson St
Marshall	Argos	Marshall Co. Fairgrounds	211 W. Walnut St
Marshall	Bourbon	Triton High School	600 Shaffer Rd
Marshall	Bremen	No Name	End of N. Marshall St
Marshall	Culver	No Name	828 E. Lakeshore Dr
Marshall	LaPaz	LaPaz Community Building	LaPaz Community Building
Marshall	Plymouth	Plymouth Public Library	201 N. Center St
Marshall	Bremen	Bremen Public Library	304 N. Jackson St
Marshall	Culver	Culver Public Library	North Main St
Marshall	Argos	Argos Public Library	119 W. Walnut
Marshall	Bourbon	Bourbon Public Library	307 N. Main St
Porter	Boone Grove	No Name	550 S. 319 West
Porter	Burns Harbor	Beverly Shores	1240 Boo Rd
Porter	Chesterton	Wiseway Store	801 Broadway
Porter	Hebron	No Name	125 N Main
Porter	Kouts	No Name	406 S. Kouts St
Porter	Michigan City	Town of Pines	1523 Delaware Ave
Porter	Valparaiso	Wiseway Store	2168 US Highway 30

Black = existed at 12/97  
 Blue = added to '97 list in '98  
 Teal = deleted from '97 list in '98  
 Green = new in 1999  
 Red = discontinued in 1999